Vision Statement

An efficient network of transportation facilities in the North Central Region is vital to moving people and goods. Transportation affects us all—our lives and livelihoods depend a great deal on a transportation system that offers opportunities for various choices and modes of travel.

The State Route 20 is a major corridor for tourism and recreation. In 1967 the Washington State Legislature designated the route a State Scenic Byway from Sedro Woolley to the junction of SR 153 just east of Twisp—part of the *Cascade Loop* tourism corridor. This section of SR 20, known as the North Cascades Highway, is a premier recreational corridor. In 1999 the Department completed the SR 20 Corridor Management Plan with guidance from citizen volunteers. The document identifies strategies for enhancement of tourism along the corridor. In 1993 the Legislature designated an additional section of the route from Tonasket to Republic as a State Scenic Byway.

Severe avalanches in the vicinity of Rainy Pass and Washington Pass force the seasonal closure each winter from Nehalem, on the west, to Early Winters Creek, on the east. The section east of Twisp is also an important route for local freight movement. It connects the people and markets of the Methow Valley and the Republic vicinity with the commercial centers along the north-south corridor of US 97.

To many extents our transportation facilities have been provided to meet the travel needs, but they were constructed to accommodate a population of the past. In order to ensure an efficient transportation system for the future, it is important to plan for the growth that continues to occur. This Route Development Plan (RDP) provides an outline for discussions of future development of State Route 20 in the North Central Region.

Study Limits

The study limits of this RDP include only that section of SR 20 in the North Central Region. The Plan begins at the Granite Creek Bridge, west of Rainy Pass in Skagit County, traverses Okanogan County, and ends at the Ferry County line. The milepost limits are from MP 148.12 to MP 297.23. Where SR 20 is coincident with SR 97, from Okanogan to Tonasket, the milepost numbering for SR 97 is used.

Plan Organization

Transportation data from many sources is brought together in the SR 20 Route Development Plan and presented in a strip map format. The data is related to a specific location or a highway section within milepost limits, with mileposts shown to the nearest hundredth of a mile. To aid in placing the strip map data in a geographic context, aerial photographs and maps are included. At the top of each page, urban areas are represented by our most recent aerial photos, and rural areas are represented by parts of USGS quadrangle maps.

Data Sources

SR 20 Intersections and Features……...	*Transportation Information and Planning Support (TRIPS): State Highway Log / Planning Report.*
Freight Tonnage Class…….……..	*Freight and Goods Transportation System (FGTS)*
Functional Class / Level of Development ……..	*Washington State Pavement Management System (WSPMS)*
Access Management / Control……..….	*Limited Access Route Listing and Access Management Classification Report.*
Traffic Data and Congestion Index (CI) 2000/2020……..	*Transportation Planning Office (TPO).*
Existing Conditions…….……..…	*TRIPS: State Highway Log / Planning Report*
Deficiencies / Future Needs……..	*State Highway System Plan (HSP); Priority Array Tracking System(PATS); and Bridge Preservation Report.*
Environmental Conditions[(1)]…….	*GIS data through ArcView from Environmental Affairs Office (EAO), North Central Region (NCR) Environmental Office; and the Highway System Plan (HSP).*

(1) The Environmental Conditions section provides an initial screening of environmental concerns. The twelve categories of concern reviewed for this RDP are listed here, with the source of data.

- *Sec. 303d Streams*……*Impaired Streams and lakes listed by the State Dept. of Ecology under Section 303d Federal Clean Water Act.*
- *Bull Trout Area*…… *Washington Dept. of Fish and Wildlife.*
- *Steelhead 99 Area*……*Bonneville Power Admin. For NMFS.*
- *Chinook 99 Area*……*Bonneville Power Admin. For NMFS.*
- *Priority Habitat Species (PHS) Areas*.. *Washington Dept. of Fish and Wildlife 8/99 update.*
- *Cultural Resource Areas*…… *NCR Environmental Office.*

- *Wetlands & Riparian Areas…… National Wetlands Inventory w/SRview review.*
- *Fish Barriers…… Washington Dept. of Fish and Wildlife.*
- *Well Head Protection Zones…….. Washington Dept. of Health.*
- *Sensitive Plant Areas…….. Washington Dept. of Natural Resources -Plant Natural Heritage data.*
- *Contaminated Site…….. CSCS – Confirmed and Suspected Contaminated Sites, Washington Dept. of Ecology.*
- *FEMA 100 yr. Flood Zone……. Federal Emergency Management Agency Q3 Flood Data for Washington State Counties.*

Stakeholder Involvement

An internal North Central Region work group was formed including representation from Planning, Project Definition, Program Management, Construction, Traffic, Local Programs, and the Regional Administrator. The members met several times to focus the efforts of route development planning. Early on, the work group decided to phase the RDP process. Recent discussions have resulted in an amended focus.

Phase 1 Route Continuity; Collection of existing conditions; Existing and projected future measure of highway segment performance-- Congestion Index (CI) and Level Of Service (LOS); Route deficiencies and identification of future needs; and provide initial screening of environmental concerns.

Phase 2 Public Involvement in transportation decisions; and Land use planning coordinated with transportation needs.

The decision to phase the process was based on: 1) The need to first establish a Region transportation baseline; 2) The economics of time and money needed to produce Route Development Plans; and 3) The process is not perfected.

This Plan provides recommended improvement strategies to existing and future deficiencies of the transportation system in the SR 20 corridor. This is primarily a rural route with low traffic volumes. The capacity of the roadway is adequate for projected traffic growth. The deficiencies identified primarily relate to aging bridges, narrow shoulders, and fish barriers.

Highways of Statewide Significance

Highways of statewide significance (HSS) are deemed essential public facilities under the Growth Management Act. House Bill HB 1487 requires that the State give higher priority to correcting deficiencies on those facilities classified as facilities of statewide significance. SR 20 is designated as an HSS route.

Conclusion

Planning is an ongoing process and must be flexible in order to incorporate unforeseen trends. One of the long-range goals of this plan is to integrate the Department of Transportation's needs with the needs of cities, counties, the Colville Confederated Tribes, the traveling public, the trucking industry, and North Central Regional Transportation Planning Organization. It is believed that this evolving RDP will provide the basis for discussion between the Department, Regional communities, and others, for integration of transportation needs.

This long-range plan may be used to provide guidance for development of the North Central Region's program of projects and to the Region's Development Services Team in defining developer impact mitigation measures. The Route Development Plan will be updated periodically to keep pace with changing transportation needs.

Access Control: Access control is established to preserve the safety and efficiency of specific highways and to preserve the public investment. Control of access is effected by acquiring rights of access from abutting property owners, and by selectively limiting approaches to the highway.

Average Annual Daily Traffic (ADT): The total traffic volume (both directions) that traveled over a highway segment during a one year period divided by the number of days in the year.

Channelization: The separation or regulation of conflicting traffic movements into defined lanes of travel to provide safe and efficient movement of vehicles and pedestrians.

Directional Factor (%D): Percentage of design hour volume flowing in the peak direction.

Freight & Goods Transportation System (FGTS): A statewide network and classification system of state highways, county roads and city streets that carry freight. Routes are classified by total tonnage of freight carried per year:
T-1: Over 10 million tons
T-2: 4 million to 10 million
T-3: 300,000 to 4 million
T-4: 100,000 to 300,000
T-5: Over 20,000 in 60 days

Functional Class: The WSDOT was directed by RCW 47.05.021 to subdivide all state highways, other than National System of Interstate and Defense Highways, into three Functional Classifications: Principal Arterials; Minor Arterials; and Collectors. The objective of functional classification is to define appropriate purposes of various highways in providing service and influencing development.

High Accident Corridor (HAC): A highway corridor one mile or greater in length where a five year analysis of collision history indicates that the section has higher than average collision and severity factors.

Highways of Statewide Significance (HSS): 1998, the Legislature passed and the Governor signed HB 1487. This approved legislation requires the Transportation Commission to give higher priority for correcting deficiencies on those facilities classified as facilities of statewide significance.

K Factor (%K): Design hour volume as a percentage of Average Daily Traffic (ADT).

Left Turn Lane (LTL): One way storage lane for vehicles turning left from one roadway onto another.

Level of Dev.: Level of Development represents levels of improvements that were applicable to various sections of highway under normal conditions. In this concept, the state highways were categorized into three improvement levels: Design Standards Level; 3-R (Resurfacing, Restoration, and Rehabilitation); and Maintain Structural Integrity and Operational Safety. SR 20 was constructed to Standards that preserved and extended the service life of the highway and improved highway safety but which did not necessarily increase highway capacity. The Level of Development concept was updated in August 1995 to a Design Matrix process.

Level Of Service (LOS): A qualitative measure that incorporates the collective factors of speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs provided by a highway facility under a particular volume condition. Six levels of congestion are given designations from "A" to "F," with LOS "A" representing the best conditions, and LOS "C" and "D" representing the minimum acceptable quality of service on rural and urban facilities.

Metropolitan Planning Organization (MPO): The agency designated by the Governor (or governors in multi-state areas) to administer the federally required transportation planning process in a metropolitan area. An MPO must be in place in every urbanized area over 50,000 population. The MPO is responsible for the 20-year long-range plan and the Transportation Improvement Program.

Milepost: A state highway mile marker. State highway mileposts begin at zero on the southern terminus of a north/south route (odd numbered routes) and the western terminus of an east/west route (even numbered routes).

National Highway System (NHS): A system designated by Congress that contains all interstate routes, a large percentage of urban and rural principal arterials, and strategic highways and connectors. There are over 3000 miles of state highways that are NHS routes.

Regional Transportation Planning Organizations (RTPO): Authorized by the legislature in 1990 as part of the Growth Management Act. They are voluntary organizations with representatives from state and local governments to coordinate transportation planning activities within a region. The North Central RTPO is composed of Okanogan, Chelan, and Douglas Counties. QUADCO (Quad County) is composed of Adams; Grant, Lincoln, and Kittitas Counties.

Right Turn Pocket (RTP) and Right Turn Taper (RTT): Used at a minor intersection where a deceleration lane is not required and turning volumes indicate a need to offer an earlier exit to right-turning vehicles.

Wye Intersection (Y): An intersection with three legs in the general form of a "Y" and the angle between two legs is less than 60 degrees; Used for a one way diverge or merge operation.

WTP Travel Delay Methodology

Washington's Transportation Plan (WTP) is a strategic, twenty-year, transportation plan for the state. It is important because it is the decision tool that links state and regional transportation plans to provide strategic direction for transportation investments.

When people talk about their average travel or commute experiences, they normally consider how long it takes to go from point A to point B during various hours of the day. This perspective is easily understood. However it's not the way transportation professionals talk about system performance. Nor is it the way decisions about improvements are made, whether it's selecting among a range of alternative solutions or prioritizing investments.

The method described below for evaluating transportation system performance is being adopted as part of the state's development of the Washington Transportation Plan (WTP). In 1999, the Washington State Transportation Commission adopted a congestion relief policy that underlies the development of the WTP. It says that the WTP should:
"… improve travel time reliability and reduce travel delay for people and freight on the state highway system. These improvements should be measurable and noticeable to the public."
Until recently, transportation professionals have relied on such measures as volume-to-capacity (V/C) and level of service (LOS) to describe how well or poorly roadways operate. These measures have proven useful before when evaluating roadway deficiencies and potential solutions. However, V/C and LOS do not convey the duration and extent of congestion. Knowing these shortcomings, other measures are needed to gauge the effectiveness of transportation programs in meeting the objectives of the congestion relief policy.

The delay methodology uses the concept of a **Congestion Index (CI)** value to describe system performance of a roadway segment. The CI value is the "AADT/C Ratio" of a roadway segment. The annual average daily traffic (AADT), expressed in vehicles per day, is divided by the roadway segment capacity (C). Roadway capacity is the maximum number of vehicles it is capable of serving, expressed in vehicles per hour. The resulting value represents the average vehicle demand and duration of congested conditions on a roadway segment.

WTP Travel Delay Methodology

The CI values shown in the table on this page are deficiency thresholds for urban and rural roadways. Compared to traditional technical measures, the thresholds equate to LOS "D" operation in urban areas and LOS "C" in rural areas. A deficient segment is one whose CI value equals or is greater than the CI threshold. Otherwise, the segment is considered not deficient. Delay is defined as any time when the travel speed falls below the free flow speed. Free flow speeds are noted in the table shown on this page.

URBAN CI Threshold = 10	(Base) Free Flow Speed	Minimum Operating Speed Considered Acceptable	No. of Hours when Average Speeds are below Free Flow Speed
Freeway-type Facility	60 mph	42 mph	7
Arterial	40 mph	18 mph	7

RURAL CI Threshold = 6	(Base) Free Flow Speed	Minimum Operating Speed Considered Acceptable	No. of Hours when Average Speeds are below Free Flow Speed
Freeway-type Facility	60 mph	57 mph	7
Arterial	40 mph	23 mph	7

WSDOT will use this methodology to identify and compare deficiencies among corridors of statewide significance. Once identified, the deficient corridors will be evaluated using such measures as per-person-delay and/or number of hours of congestion, among others. The same delay program will be used to test the effectiveness of a solution or a number of actions. This same methodology can be used by MPOs and RTPOs to evaluate deficiencies and solutions for regionally significant corridors.

All deficient statewide corridors and regional corridors will be compiled into a statewide list. Decisions about which corridors the State will invest in can then be made based on the relative levels of deficiencies or needs, as well as the cost effectiveness of solutions. The new Washington Transportation Plan will be a truly strategic program of state investments for corridors that are the most critical for the state's long term economic, environmental, and community interests.

Level of Service Analysis

The traditional method for measuring congestion on a highway segment is by "Level of Service" analysis, as defined by the industry-standard Highway Capacity Manual. **Level of Service (LOS)** is a qualitative rating of highway performance ranging from LOS A--free flow conditions-- to LOS F—jammed conditions. Most local agencies and private traffic engineers still use LOS as the traffic congestion measure. Therefore, we have provided LOS as well as CI ratings in this RDP to allow for clear understanding of highway capacity.

The North Central Region Planning Department welcomes your comments and input on this and future *Route Development Plans (RDP)*. Please contact us at:

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